

MIGRATIONS OF THE BUTTERFLIES *GLYCESTHIA AUROTA*, *CATOPSILIA FLORELLA* AND *CRENIS OCCIDENTALUM* IN EAST AFRICA IN 1967-68

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The complex patterns of insect migration in Africa are not well understood for even the two commonest pierid migrants *Glycesthia aurota* Fab. and *Catopsilia florella* L. For a review of existing records and illustrations of these two species see Williams (1958), and for the most recent discussion of the problems involved, Johnson (1969). From July, 1967 to July, 1968 all butterflies which appeared to be migrating (most fly below 20 ft. and are very conspicuous) were counted for five minutes (Table 1) as they crossed an open area 50 yards wide in front of my office at the Botany Department, University College, Nairobi. Field trips away from Nairobi generally took less than one week and, as major migrations usually take longer than this, probably few were missed during the year. No attempt was made to select days or times of day of special abundance for the counts, which were made whenever butterflies were sufficiently numerous to be noticed. Wind direction varied and did not seem to affect orientation at all, but most movement occurred in sunshine. The butterflies were identified from collections in the National Museum, Nairobi.

ACCOUNTS OF SPECIES

Glycesthia aurota

There was a strong easterly migration from 17 July to 4 August, 1967 or a little later (I was absent from 5-15 August and migration had ended on my return). Species actively migrating in the same direction included many *G. croena* Cramer and *Precis* sp., but several other species seemed to get caught up in this movement occasionally. The average intensity was 64 *G. aurota* per five minutes across the 50-yard front, and at least the whole of Nairobi (four miles wide) was affected.

From mid August till the end of the year few *G. aurota* were seen, although there was a weak westward migration averaging 15 butterflies per five minutes from 9 to 17 December, 1967 after the short rains.

A major movement started on 30 January, 1968 and reached a peak on 3-5 February when over 400 butterflies were passing each five minutes. On 5 February, 1968 I drove from Nairobi to the north side of Mt. Kenya and saw vast numbers of *G. aurota* moving west over the whole route. Mr. A. Walker told me they were just as abundant and moving in the same direction, for at least 20 miles down the Nairobi-Mombasa road. This gives a north-south front of 110 miles, and assuming a six-hour day (most activity was between 1000 hrs and 1600 hrs), a total of 111 million butterflies per day. A few *G. aurota* were moving west over alpine moorland at 13,000 ft. on the north side of Mt. Kenya, and eight dead ones (six male and two female) were picked up which had presumably been killed by frost at night. The movement had almost ended by 9 February when I returned to Nairobi.

In the second half of March 1968, there was a small migration to the east or east north-east, but no others before I left Nairobi on 31 July, 1968.

TABLE I

FIVE MINUTE COUNTS OF BUTTERFLIES CROSSING TO RIGHT OR LEFT OVER
A 50 YARD LINE OF SIGHT AT RIGHT ANGLES TO THE DIRECTION
OF MOVEMENT, AT CHIROMO, NAIROBI

Date	No. Butterflies and direction		Remarks
<i>Glycesthia aurota</i>			
17. 7.67	79 flying E	3 flying W	Several other species also
18. 7.67	56 " "	1 " "	
28. 7.67	30 " "	1 " "	
31. 7.67	66 " "	2 " "	
1. 8.67	60 " "	2 " "	Very few for next month
4. 9.67	9 " "	1 " "	Very few for next 3 months
9.12.67	2 " "	16 " "	
12.12.67	1 " "	4 " "	
17.12.67	6 " "	14 " "	Several other species
30. 1.68	2 " "	111 " "	New emergence. None all January
31. 1.68	0 " "	2 " "	
1. 2.68	2 " "	26 " "	
2. 2.68	1 " "	142 " "	
3. 2.68	2 " "	362 " "	
4. 2.68	5 " "	493 " "	
13. 2.68	9 flying SSE	7 flying W	Direction rather confused
18. 2.68	7 " S	46 " "	
16. 3.68	23 " ENE	2 " "	New emergence over past few days
26. 3.68	15 " E	1 " "	Includes 2 <i>Precis</i>
27. 3.68	13 " "	0 " "	
31. 3.68	32 " "	0 " "	Includes 1 <i>precis</i> . Few for next 4 months
<i>Catopsilia florella</i>			
3. 1.68	13 flying NE	2 flying SW	
6. 1.68	10 " "	1 " "	
14. 1.68	19 " "	0 " "	
15. 1.68	17 " "	0 " "	
16. 1.68	24 " "	2 " "	
17. 1.68	16 " "	2 " "	
30. 1.68	2 " "	0 " "	
31. 1.68	21 " "	0 " "	
1. 2.68	1 " "	0 " "	
2. 2.68	3 " "	0 " "	

Catopsilia florella

Only one migration of this species occurred during the year, from 3 January to 2 February, 1968, averaging 13 (max. 24) butterflies per five minutes. Two features were noted: the butterflies preferred to fly up and over the three storey building across their path rather than detour round it; and from 30 January to 2 February their north-easterly path crossed the far stronger westerly one of *G. aurota*. This provided the fascinating spectacle of completely independent streams of insects flying in different directions, as described by Williams (1958) for *C. florella* and *Terias senegalensis* Boisid.

Crenis occidentalum Mabille (Nymphalidae)

On 30 June, 1968 from 40 miles north to seven miles west of Fort Portal, Uganda, *C. occidentalum* was flying south-east against a moderate wind. The butterflies kept within five feet of the ground and at their thickest 205 were counted in five minutes crossing a 50 yard space in front of the car. Since we drove from Hoima to Queen Elizabeth Park this day, the approximate width of the migration (40 miles) was known, but not its duration. Three female and four male butterflies were picked off the car radiator, so both sexes were involved.

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